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Notice of Allowability	Application No.	Applicant(s)	
	10/728,917	SHIMIZU ET AL.	
	Examiner	Art Unit	
	Jung (John) Hur	2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 08 December 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

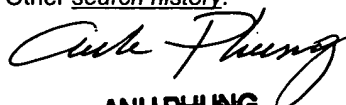
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>12/8/03</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. 7. <input checked="" type="checkbox"/> Examiner's <u>Amendment</u>/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input checked="" type="checkbox"/> Other <u>search history</u>. |
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ANH PHUNG
PRIMARY EXAMINER

DETAILED ACTION

1. Claims 1-13 are pending in the application.

Information Disclosure Statement

2. Acknowledgment is made of applicant's Information Disclosure Statement (IDS), filed 08 December 2003 (with Form PTO-1449) and 24 June 2004. The information disclosed therein has been considered.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows (to correct minor syntax and antecedent errors):

In claim 1, in the 5th and 6th lines from the end of the claim, "one of the fourth driver" has been replaced with --one of the fourth drivers--, and "one of second sinker" has been replaced with --one of the second sinkers--.

In claim 1, in the 7th and 8th lines from the end of the claim, "a one-axis writing" has been replaced with --a one-axis write--.

In claim 1, in the 3rd and 4th lines from the end of the claim, "the one-axis writing" has been replaced with --a one-axis write--.

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In claim 9, lines 7-8, "the one-axis write" has been replaced with --a one-axis write--.

In claim 13, line 1, "test is ended" has been replaced with --the test is ended--.

Allowable Subject Matter

4. Claims 1-13 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the prior arts of record do not disclose or suggest a magnetic random access memory as recited in claim 1, and particularly, a first circuit configured to cause the second driver and first sinker to write information in a plurality of memory cells at a time by a one-axis write in an axis of hard magnetization; and a second circuit configured to cause one of the fourth drivers and one of the second sinkers to write information in a plurality of memory cells by a one-axis write in an axis of easy magnetization and simultaneously supply a larger current than that in a two-axis write in a normal operation.

Regarding claim 13, the prior arts of record do not disclose or suggest a test method as recited in claim 13, and particularly, executing a write in a memory cell having a magneto-resistive element by a one-axis write along an axis of easy magnetization by a write bit line, and supplying a larger current than that in a two-axis write in a normal operation to a write word line by a one-axis write along an axis of hard magnetization.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Perner et al. (U.S. Pat. No. 6,256,224) discloses an MRAM write circuit.

Perner et al. (U.S. Pat. No. 6,584,589) discloses a means for testing an MRAM.

Perner (U.S. Pat. No. 6,606,262) discloses a means to optimize write current.

Smith et al. (U.S. Pat. No. 6,751,147) discloses a means for adaptively writing to an MRAM.

Perner (U.S. Pat. No. 6,791,873) discloses a test cell for write characterization.

Perner (U.S. Pat. No. 6,850,430) discloses a means to eliminate a write error condition.

Iwata, Yoshihisa et al. (U.S. Pat. Appl. Pub. No. 2004/0042297) discloses a means to compensate a change in write characteristics.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung (John) Hur whose telephone number is (571) 272-1870. The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read "Anh Phung". The signature is fluid and cursive, with the first name "Anh" and last name "Phung" clearly distinguishable.

**ANH PHUNG
PRIMARY EXAMINER**